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TELEFAX**Date:** March 14, 2005**Total pages:** 13 (w/fax cover)**To:** USPTO**Telephone:****Telefax:** 703-872-9306**From:** Brian Adams**Telephone:** 404-879-2154**Telefax:** 404-879-2160**Our Docket No.** MBX 041**Client/Matter No.** 077832/40

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MESSAGE:**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE****Applicant:** Stephanie Aquin, Oliver P. Peoples, and Kristi D. Snell**Serial No:** 09/991,152**Art Unit:** 1645**Filed:** November 6, 2001**Examiner:** Elizabeth F. McElwain**For:** *PRODUCTION OF MEDIUM CHAIN LENGTH POLYHYDROXYALKANOATES
FROM FATTY ACID BIOSYNTHETIC PATHWAYS*

Transmittal Form PTO/SB/21, Fee Transmittal PTO/SB/17 and Petition for Reconsideration
of Restriction Requirement.

{45053948.1}

MAR 14 2005

PTO/SB/17 (12-04)

Approved for use through 07/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).**FEE TRANSMITTAL**
For FY 2005☐ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT** (\$0.00)**Complete if Known**

Application Number	09/991,152
Filing Date	November 16, 2001
First Named Inventor	Stephanie Aquin
Examiner Name	Elizabeth McElwain
Art Unit	1645
Attorney Docket No.	MBX 041

METHOD OF PAYMENT (check all that apply)☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____☒ Deposit Account Deposit Account Number: 50-3129 Deposit Account Name: Pabst Patent Group LLP

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

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FEE CALCULATION**1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent	50	25
Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)	Multiple Dependent Claims	Fee (\$)	Fee Paid (\$)
27 - 29 or HP =	0x	0.00	0.00			
HP = highest number of total claims paid for, if greater than 20						
Indep. Claims	Extra Claims	Fee (\$)	Fee Paid (\$)			
3 - 5 or HP =	0x	0.00	0.00			
HP = highest number of independent claims paid for, if greater than 3						

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).


Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
- 100 =	/ 50 =	(round up to a whole number) x		

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other: _____

SUBMITTED BY

Signature		Registration No. 56,288	Telephone (404) 879-2154
Name (Print/Type)	Brian K. Adams	Date	March 14, 2005

This collection of information is required by 37 CFR 1.138. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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MBX 041 077832/40


PTO/SB/21 (03-04)


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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	09/991,152	
	Filing Date	November 16, 2001	
	First Named Inventor	Stephanie Aquin	
	Art Unit	1645	
	Examiner Name	Elizabeth McElwain	
Total Number of Pages in This Submission	12	Attorney Docket Number	MBX 041

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priorly Document(s) <input type="checkbox"/> Reply to Missing Parts/ Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input checked="" type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosure(s) (please identify below):
Remarks _____		
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT		
Firm Name	Pabst Patent Group LLP	
Signature		
Printed name	Brian K. Adams	
Date	March 14, 2005	Reg. No. 56,288

CERTIFICATE OF TRANSMISSION/MAILING		
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Signature		
Typed or printed name	Chandra Russell	Date March 14, 2005

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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MAR 14 2005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Stephanie Aquin, Oliver P. Peoples, and Kristi D. Snell

Serial No.: 09/991,152

Art Unit: 1645

Filed: November 16, 2001

Examiner: Elizabeth F. McElwain

For: *PRODUCTION OF MEDIUM CHAIN LENGTH
POLYHYDROXYALKANOATES FROM FATTY ACID BIOSYNTHETIC
PATHWAYS*Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450**PETITION FOR RECONSIDERATION OF RESTRICTION REQUIREMENT**

Sir:

Pursuant to 37 C.F.R. § 1.144, Applicant's petition the Group Director to review the restriction requirement set forth in the Office Action mailed on July 9, 2004, as maintained in the Office Action mailed January 13, 2005, despite a telephone interview with the examiner and supervisor, and a substantive amendment to claim 1, which have both apparently been ignored.

It is believed that no fee is required with this submission. However, should a fee be required, the Commissioner is hereby authorized to charge any fees to Deposit Account No. 50-3129.

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Filed: November 16, 2001

PETITION FOR RECONSIDERATION OF RESTRICTION REQUIREMENT**Remarks**

In the Office Action mailed July 9, 2004, the claims were divided into 19 groups:

Group I, claims 1, 13, and 20, drawn to a transgenic organism expressing a 3-hydroxyacyl-ACP thioesterase, and a method of engineering an organism and a method of making PHA by expressing said enzyme;

Group II, claims 2, 3, 6, 14, 15, 21, and 22, drawn to a transgenic organism expressing a 3-hydroxyacyl-ACP thioesterase and a 3-hydroxyacyl-CoA synthetase, and a method of engineering an organism to express said enzymes;

Group III, claims 2, 4, 14, and 21, drawn to a transgenic organism expressing a 3-hydroxyacyl-ACP thioesterase and *alkK* acyl-CoA synthetase, and a method of engineering an organism to express said enzymes;

Group IV, claims 2, 14, and 21, drawn to a transgenic organism expressing a 3-hydroxyacyl-ACP thioesterase and acyl CoA transferase, and a method of engineering an organism to express said enzyme;

Group V, claims 5, 16, 17, 23, and 24, drawn to a transgenic plant expressing a 3-hydroxyacyl-ACP thioesterase, a 3-hydroxyacyl-CoA synthetase and a PHA synthase, and a method of engineering a plant to express said enzymes;

Group VI, claims 15, 16, 17, and 23, drawn to a transgenic plant expressing a 3-hydroxyacyl-ACP thioesterase and *alkK* acyl-CoA synthetase and a PHA synthase, and a method of engineering a plant to express said enzymes;

Group VII, claims 5, 16, 17, and 23, drawn to a transgenic plant expressing a 3-hydroxyacyl-ACP thioesterase and acyl CoA transferase and a PHA synthase, and a method of engineering a plant to express said enzyme;

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PETITION FOR RECONSIDERATION OF RESTRICTION REQUIREMENT

Group VIII, claim 6, drawn to a transgenic organism expressing a 3-hydroxyacyl-ACP thioesterase and acyl CoA transferase and a PHA synthase and a hydroxyacyl-CoA synthetase;

Group IX, claim 6, drawn to a transgenic organism expressing a 3-hydroxyacyl-ACP thioesterase and acyl CoA synthetase (*alkK*) and a PHA synthase and a hydroxyacyl-CoA synthetase, and a method of engineering an organism to express said enzyme;

Group X, claim 7, drawn to the transgenic organism of claim 1, wherein the enzyme is modified;

Group XI, claims 8, 9, 11, 18, and 25, drawn to a transgenic plant expressing a 3-hydroxyacyl-ACP thioesterase, a 3-hydroxyacyl-CoA synthetase and a PHA synthase, and that may express a medium chain length 3-hydroxy fatty acid acyl CoA in a plant, and a method of engineering a plant to express said enzymes;

Group XII, Claims 8, 9, 11, 18, and 25, drawn to a transgenic plant expressing a 3-hydroxyacyl-ACP thioesterase and *alkK* acyl-CoA synthetase and a PHA synthase, and that may express a medium chain length 3-hydroxy fatty acid acyl CoA in a plant, and a method of engineering a plant to express said enzymes;

Group XIII, claims 8, 9, 11, 18, and 25, drawn to a transgenic plant expressing a 3-hydroxyacyl-ACP thioesterase and acyl CoA transferase and a PHA synthase, and that may express a medium chain length 3-hydroxy fatty acid acyl CoA in a plant, and a method of engineering a plant to express said enzyme;

Group XIV, claims 10, 12, 19, 26, and 29, drawn to a transgenic organism expressing a 3-hydroxyacyl-ACP thioesterase, a 3-hydroxyacyl-CoA synthetase and a

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Filed: November 16, 2001

PETITION FOR RECONSIDERATION OF RESTRICTION REQUIREMENT

PHA synthase, and that may express a medium chain length 3-hydroxy fatty acid acyl CoA in a plant, and a method of engineering a bacteria to express said enzymes;

Group XV, claims 10, 12, 19, 26, and 29, drawn to a transgenic organism expressing a 3-hydroxyacyl-ACP thioesterase and *alkK* acyl-CoA synthetase and a PHA synthase, and that may express a medium chain length 3-hydroxy fatty acid acyl CoA in a plant, and a method of engineering a bacteria to express said enzymes;

Group XVI, claims 10, 12, 19, 26, and 29, drawn to a transgenic organism expressing a 3-hydroxyacyl-ACP thioesterase and acyl CoA transferase and a PHA synthase, and that may express a medium chain length 3-hydroxy fatty acid acyl CoA in a plant, and a method of engineering a bacteria to express said enzyme;

Group XVII, claim 27, drawn to a method of screening for enzymes encoding a 3-hydroxyacyl ACP-thioesterase by co-expressing with PHA synthase and 3-hydroxyacyl-CoA synthetase;

Group XVIII, claim 27, drawn to a method of screening for enzymes encoding a 3-hydroxyacyl ACP-thioesterase by co-expressing with PHA synthase and CoA transferase;

Group XIX, claim 28, drawn to a method for increasing levels of C8 and C10 hydroxyacids or fatty acids of a plant oil by expressing transgenes encoding 3-hydroxyacyl ACP thioesterase.

In the substitute Amendment and Response, filed October 21, 2004, the Applicants elected Group II, claims 2, 3, 6, 14, 15, 21, and 22, with traverse, and claim 1 was amended into Jepson format after a discussion with the Examiner's supervisor.

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PETITION FOR RECONSIDERATION OF RESTRICTION REQUIREMENT

As described in the application, the invention is **not** the discovery of genetically engineered plants or bacteria that make polyhydroxyalkanoates (such organisms are known and indeed are the prior art, having been described in the patent literature since 1989). The problem applicants were addressing is how to produce high levels of medium chain length polyhydroxyalkanoates (see page 3, line 27 to page 4, line 1 and page 6, lines 17-20). The solution, as described on page 4, lines 19-24, and page 7, line 3 to page 8, line 9, and defined by the claims, especially amended claim 1 shown below, is to provide, in addition to the other enzymes for polyhydroxyalkanoate production, an acyl CoA synthetase or a CoA transferase.

1. A genetically engineered organism selected from the group consisting of bacteria and plants producing polyhydroxyalkanoate, the improvement comprising providing the organism with a transgene encoding an enzyme having the catalytic activity of 3-hydroxyacyl-ACP thioesterase so that medium chain length PHA accumulates.

To be valid, a restriction requirement must establish both that (1) the "inventions" are either independent or distinct, and (2) that examination of more than one of the "inventions" would constitute a burden to the Examiner. The term "independent" (i.e., not dependent) means that there is no disclosed relationship between the two or more subjects disclosed, that is, they are unconnected in design, operation, or effect. MPEP § 806.04. It is clear that the claims are indeed connected because they recite similar elements, i.e. a bacteria or plant expressing a 3-hydroxyacyl-ACP thioesterase, acyl-CoA synthetase, acyl CoA transferase, and/or PHA synthase.

The so-called "separate" inventions, all of which are clearly encompassed by the independent claims 1, 13, and 20, are actually a single invention- providing bacteria or

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Filed: November 16, 2001

PETITION FOR RECONSIDERATION OF RESTRICTION REQUIREMENT

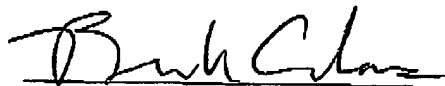
plants with the recited transgenes encoding enzymes, so that medium chain length PHA accumulates. There would no burden on the Examiner because a divergent literature and patent search would not have to be conducted since claims 1-12 and 29, 13-19, and 20-26 recite similar elements.

With the exception of the last two groups, including claims 27 and 28, which were cancelled in the response filed October 21, 2004, the restriction requirement is believed to be rendered moot in view of the amendment to claim 1. After the discussion with the Examiner's supervisor, it was understood that since the independent claims encompass both bacteria and plants, that although these can be restricted into separate groups, the independent claims must be treated as linking claims.

The claims, as pending, are attached as an Appendix for the convenience of the Group Director.

Favorable consideration of this Petition is earnestly solicited.

Respectfully submitted,



Brian K. Adams

Reg. No. 56,288

Date: March 14, 2005
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